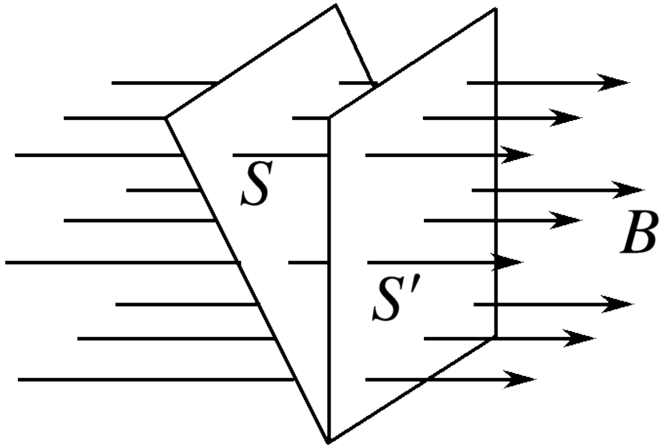
1. [illegible] 3.3

2. [illegible]

☆ [illegible]

[illegible]



1. [illegible]

(1) [illegible]________________[illegible] [illegible].

[illegible]____________ [illegible].

(2) [illegible]

[illegible].

2. [illegible]

(1) [illegible] B [illegible]_____ [illegible] S [illegible]______ [illegible] [illegible]__

________ [illegible]_______ [illegible] [illegible].

B [illegible]

[illegible]

(2) [illegible] Φ [illegible] BS . [illegible] Wb [illegible] 1 Wb [illegible] 1 T·m².

[illegible] ① [illegible] ② [illegible] . [illegible]

(3) [illegible]

[illegible] ([illegible]). [illegible] 180° [illegible] 2BS

(4) [illegible] B [illegible] $\frac{\Phi}{S}$ [illegible] B [illegible] .

[illegible]

[illegible] S [illegible] AB [illegible]

[illegible] Φ1 [illegible] Φ2 [illegible]

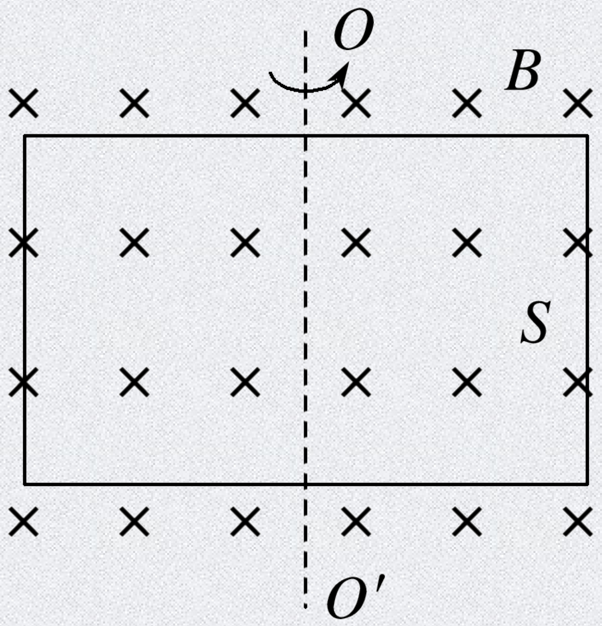
□ □□□□□□□□□□ S □□□□□□□□□□□□ B □□□□□□□□□□□□□□□□□□
□□□□□

A. □□□□□□□ OO' □□ 180° □□□□□□□□□□□

B. □□□□□□□ OO' □□ 90° □□□□□□□□□□□

C. □□□□□ OO' □□ 60° □□□□□□ $BS\frac{\sqrt{3}}{2}$

√ D. □□□□□ OO' □□ 30° □□□□□□ $BS\frac{\sqrt{3}}{2}$



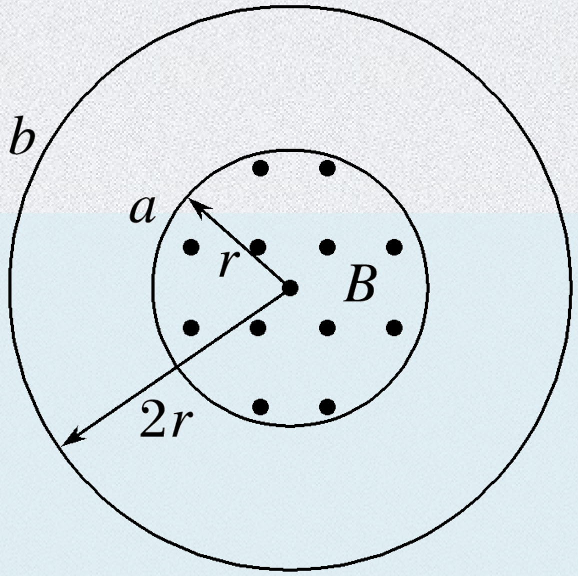
□□□□□□□□□□□□□ a □ b □□□□□□ r □ $2r$. □□□□

□□ B □□□□□□ a □□□□□□□□ a □ b □□□□□□□□□

□

√ A.1∶1　　B.1∶2

C.1∶4　　D.4∶1



3.4

[illegible]

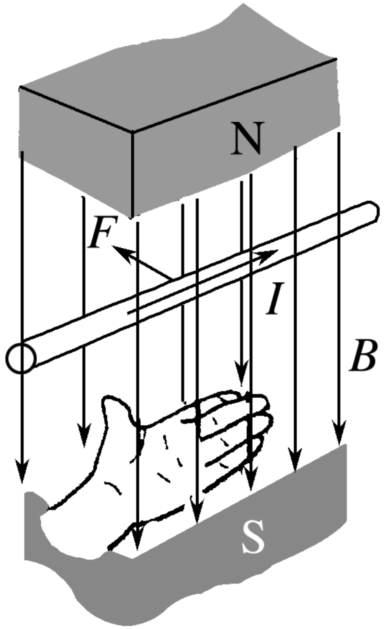
1. [illegible].

2. [illegible]

F [illegible] $BIL\sin\theta$

3. [illegible]

4. [illegible]



1. [illegible] [illegible] [illegible].

2. [illegible]

(1) [illegible] [illegible] (2) [illegible] [illegible].

3. [illegible] [illegible] [illegible] [illegible]

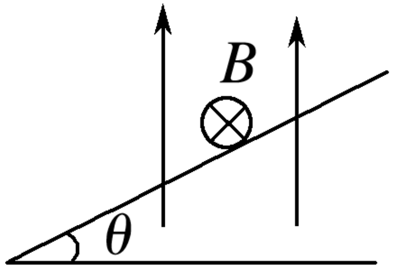
[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible].

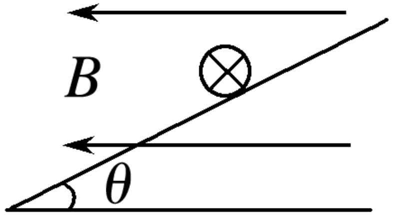
4. [illegible] $F \perp I$ [illegible] $F \perp B$ [illegible] F [illegible] ______.

B [illegible] I [illegible]

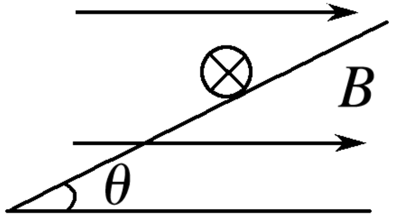
[illegible] .



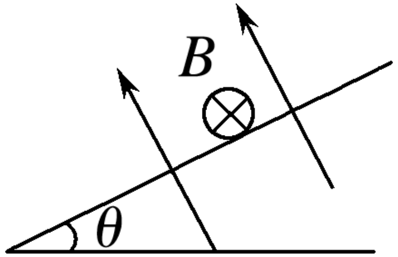
A



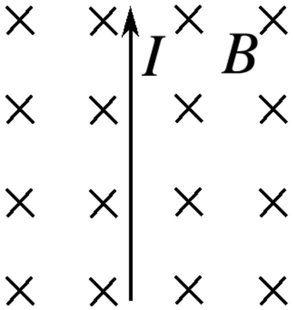
B



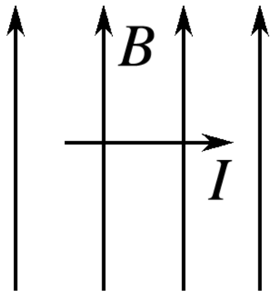
C



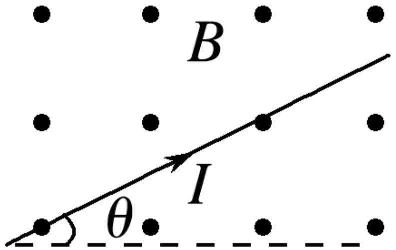
D



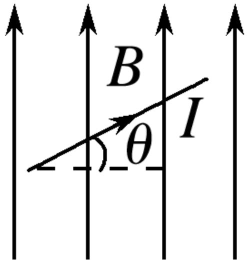
E



F



G

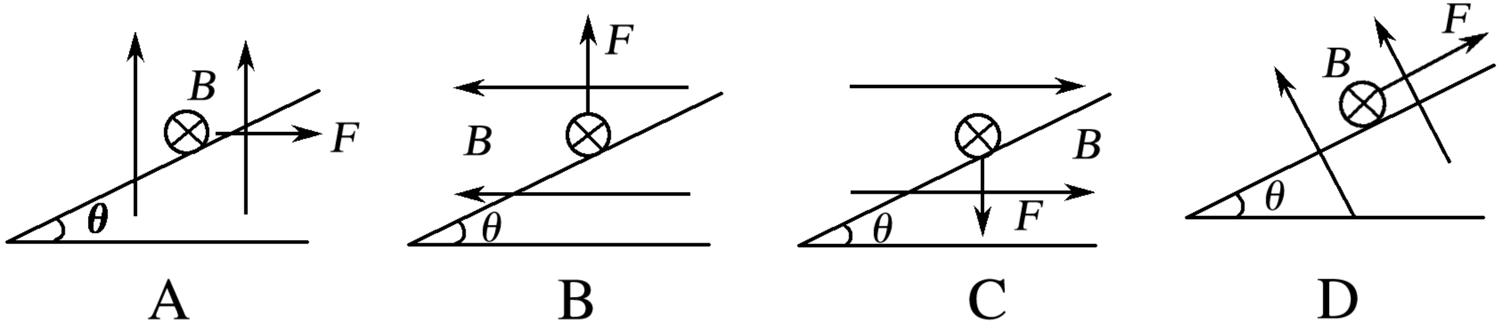


H

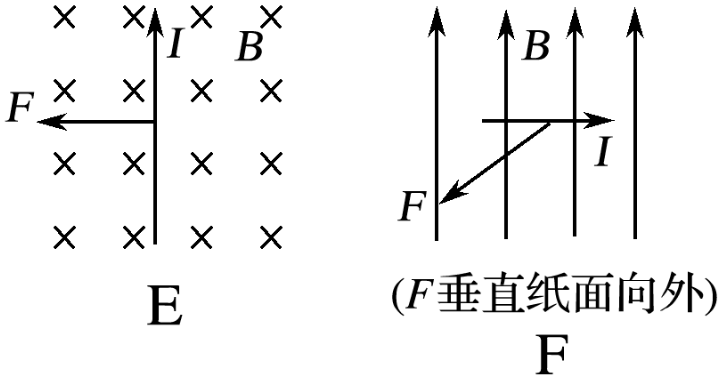
[illegible] B [illegible] I [illegible] B [illegible] I [illegible].

[illegible] B [illegible] I

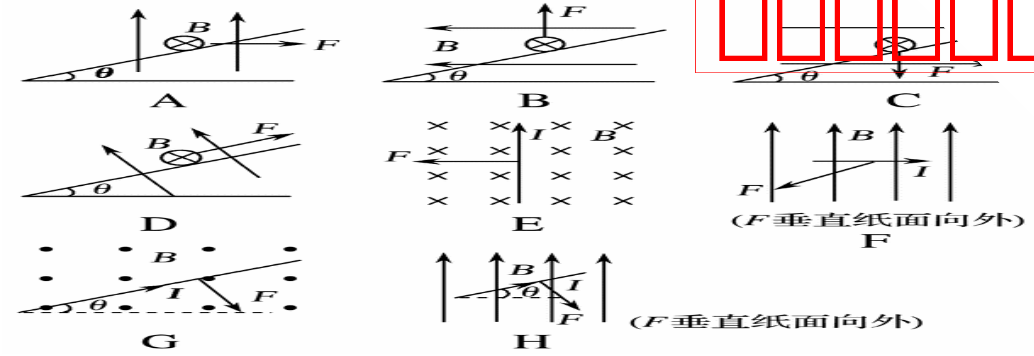
[illegible]



B
F
θ
A
F
B
θ
B
B
F
θ
C
F
B
θ
D



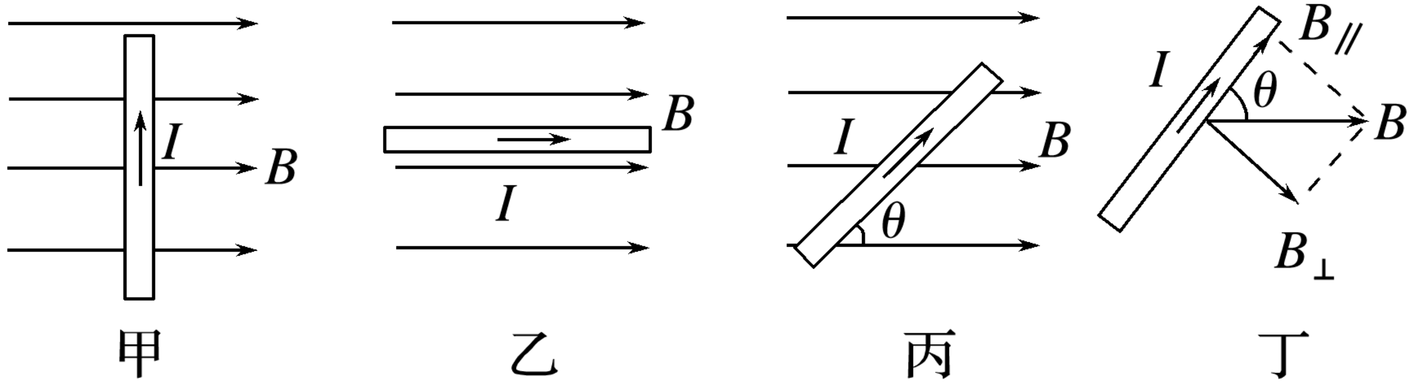
I
B
F
E
B
I
F
(F垂直纸面向外)
F



A
B
C
D
E
(F垂直纸面向外)
F
G
H
(F垂直纸面向外)

B [illegible] I [illegible]
[illegible]

[illegible].



1. [illegible] $I \perp B$ [illegible] F [illegible] ______ . BIL

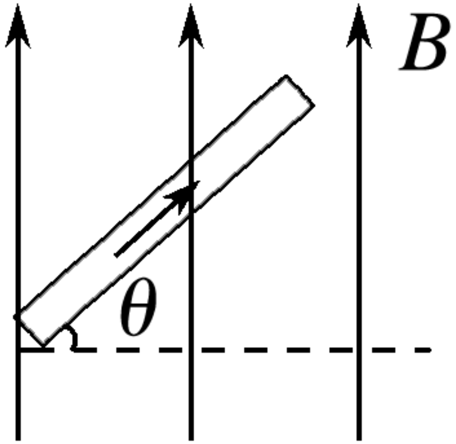
2. [illegible] $I \parallel B$ [illegible] F [illegible] ___ . 0

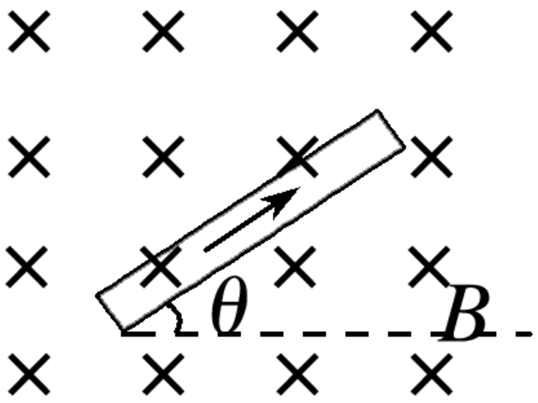
3. [illegible] I [illegible] B [illegible] θ [illegible] B [illegible]. [illegible] F [illegible] __________ $BIL\sin\theta$ [illegible]

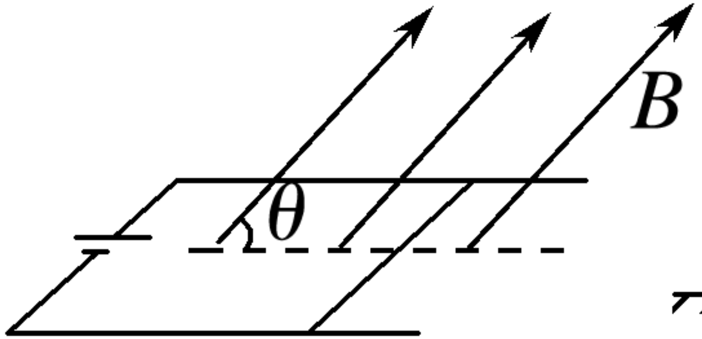
[illegible].

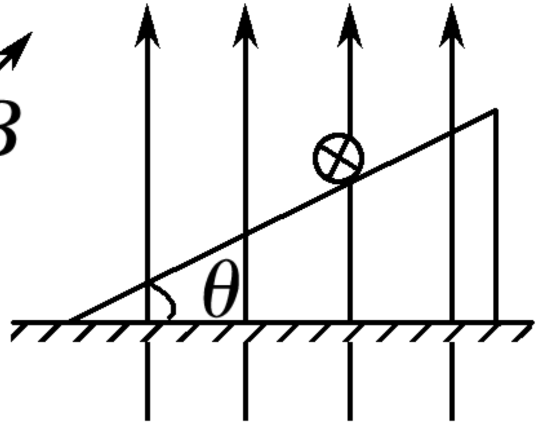
[illegible] [illegible] L [illegible] I [illegible]

[illegible] B [illegible] (　　)







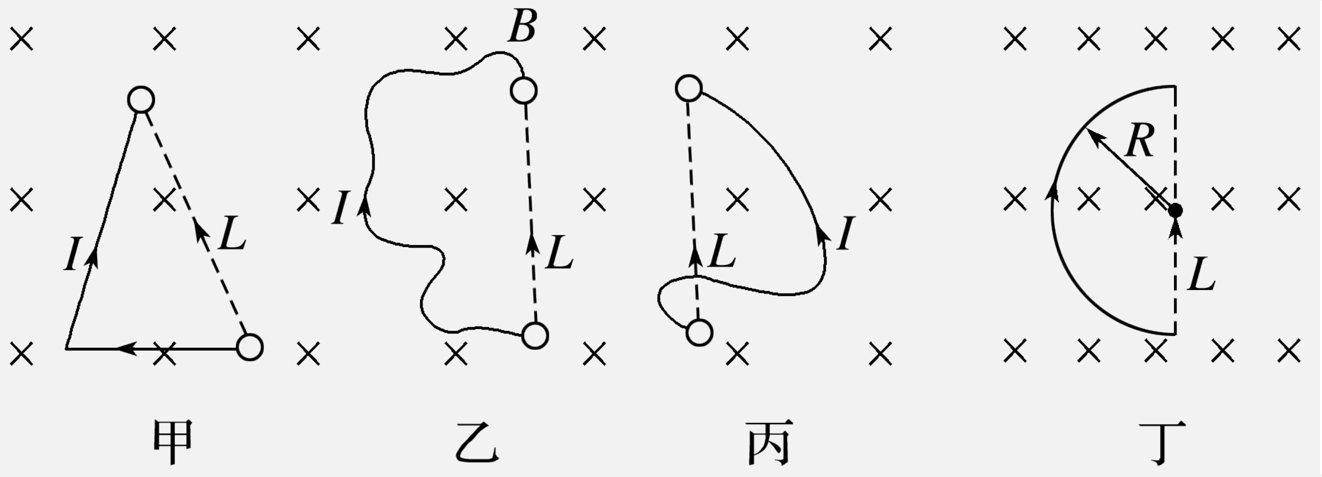


A. $F=BIL\cos\theta$ √　　B. $F=BIL\cos\theta$　　C. $F=BIL\sin\theta$　　D. $F=BIL\sin\theta$

[illegible]

[illegible] F [illegible] ILB [illegible] L [illegible]

[illegible]. [illegible] L [illegible] $2R$ [illegible] $2\pi R$.



[illegible] 0

□ □□□□□□□□□ $abcd$ □□□□□□□□□□□ B □□□□□□□□□□□□(□□□□□□□)

□□. □□ ab □ bc □ cd □□□□□ L □□$\angle abc$ □$\angle bcd$ □135°. □□□□□□□□

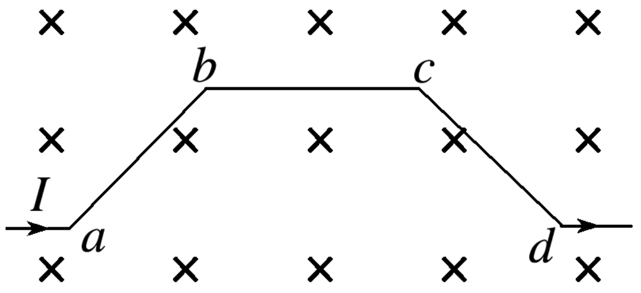
I □□□□□□□□□□□□. □□ $abcd$ □□□□□□□□□□□□□□□□( )

√A.□□□□□□□□□□$(\sqrt{2}$□$1)BIL$

B.□□□□□□□□□□$(\sqrt{2}$□$1)BIL$

C.□□□□□□□□□□$(\sqrt{2}$□$1)BIL$

D.□□□□□□□□□□$(\sqrt{2}$□$1)BIL$



[illegible]

1. [illegible] [illegible]________[illegible] [illegible]. [illegible]______.

[illegible] [illegible] [illegible]

[illegible]
______.

2. [illegible] [illegible]______[illegible].

3. [illegible]

[illegible]______[illegible]

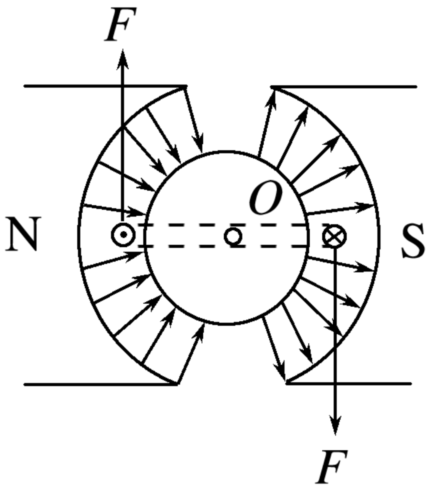
[illegible]

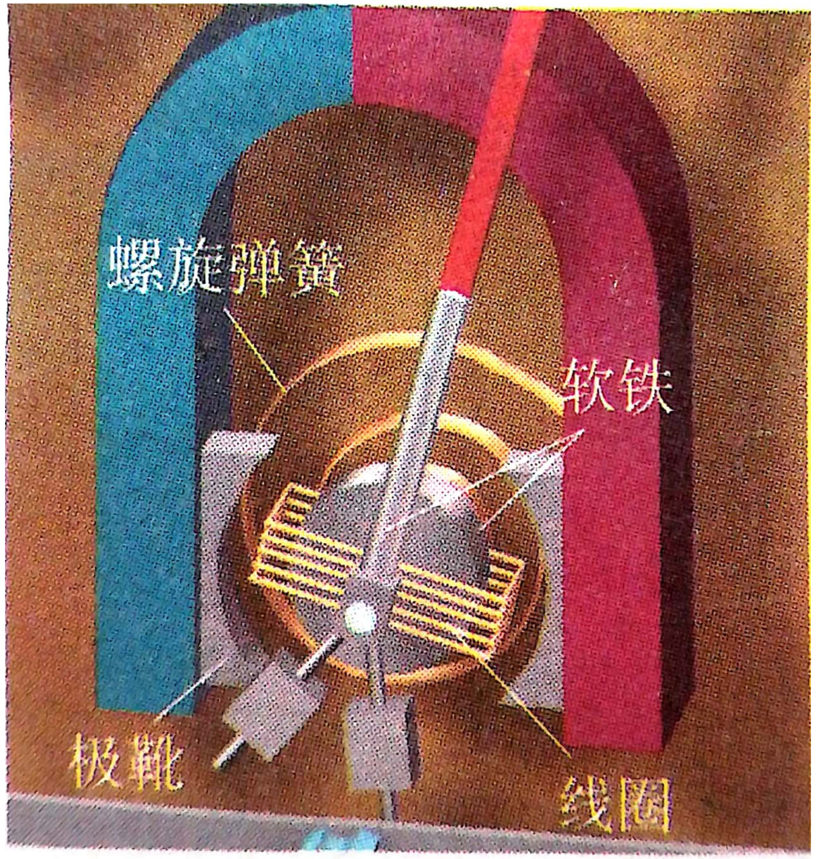
[illegible].[illegible]______[illegible]

[illegible]______[illegible].

4. [illegible]______[illegible].

[illegible].





[illegible] [illegible]. [illegible]. [illegible]

[illegible]. [illegible] (b [illegible]) [illegible] (　　)

√ A. [illegible] b [illegible]

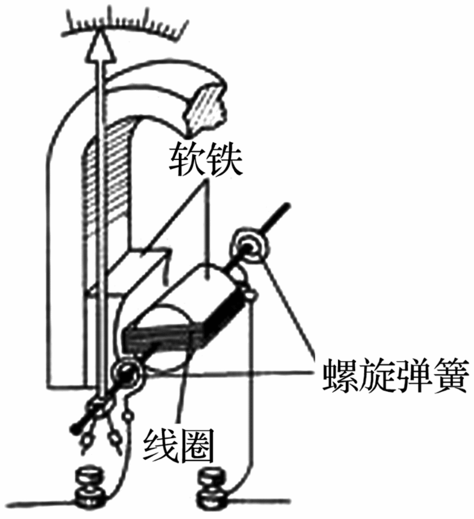
[illegible]

B. [illegible]

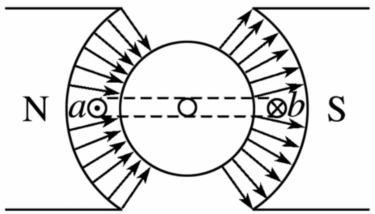
[illegible]

C. [illegible]

D. [illegible]



甲



乙

[illegible]

· [illegible]

(1) [illegible]

(2) [illegible]

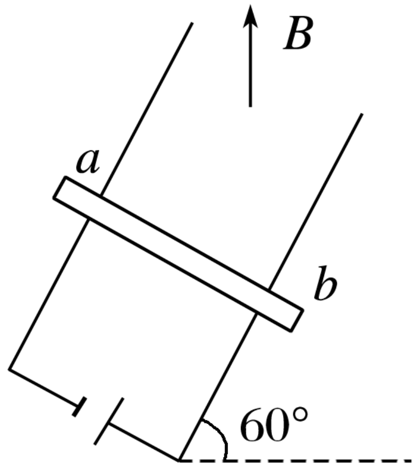
(3) [illegible] F [illegible] 0 [illegible]

□□□□□□□□□□□□□□60°□□□□□□

□□□□□□□□□□1 m□□□□□□□□□□□□m□

0.3 kg□□□□ab□□□□$b\to a$□I□3 A□□□□□□□□

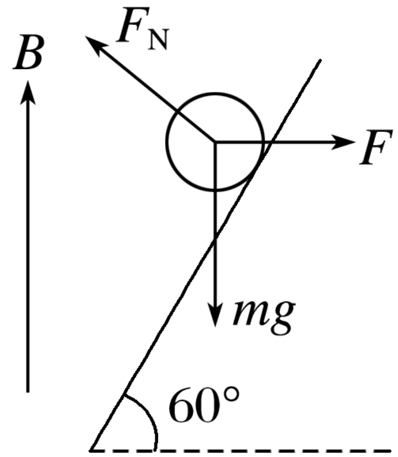
□□□□□□□□□□□□□□.



□□□□□□□□□□□□□□□

ab□□□，□□□□□□□□□□□□□□□□□□□□□□$mg\sin 60°$□

$BIL\cos 60°$.B□ $\dfrac{mg\tan 60°}{IL}$□$\dfrac{0.3\times 10\times\sqrt{3}}{3\times 1}$ T



[illegible]

[illegible][illegible]
[illegible][illegible]
[illegible][illegible]([illegible])[illegible]
[illegible].

2. 如图 1，在 xOy 平面中有一通电直导线与 Ox、Oy 轴相交，导线中电流方向如图所示. 该区域有匀强磁场，通电直导线所受磁场力的方向与 Oz 轴的正方向相同. 该磁场的磁感应强度的方向可能是（　　）

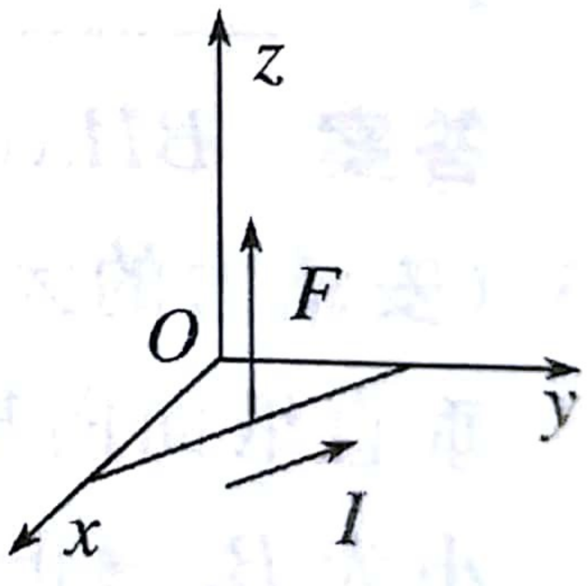


图 1

A. 沿 z 轴正方向

B. 沿 z 轴负方向

C. 沿 x 轴正方向

D. 沿 y 轴负方向

5.(多选)(2017·全国卷Ⅰ·19)如图 4,三根相互平行的固定长直导线 L_1、L_2 和 L_3 两两等距,均通有电流 I,L_1 中电流方向与 L_2 中的相同,与 L_3 中的相反. 下列说法正确的是 (　　)

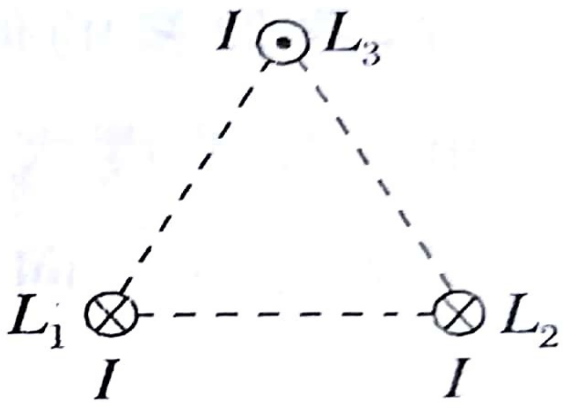


图 4

A. L_1 所受磁场作用力的方向与 L_2、L_3 所在平面垂直

B. L_3 所受磁场作用力的方向与 L_1、L_2 所在平面垂直

C. L_1、L_2 和 L_3 单位长度所受的磁场作用力大小之比为 $1:1:\sqrt{3}$

D. L_1、L_2 和 L_3 单位长度所受的磁场作用力大小之比为 $\sqrt{3}:\sqrt{3}:1$

(安培力作用下的平衡)水平面上有电阻不计的 U 形导轨 $NMPQ$,它们之间的宽度为 L,M 和 P 之间接入电动势为 E 的电源(不计内阻). 现垂直于导轨搁一根质量为 m、电阻为 R 的金属棒 ab,并加一个范围较大的匀强磁场,磁感应强度大小为 B,方向与水平面夹角为 θ 且指向右上方,如图 12 所示,问:

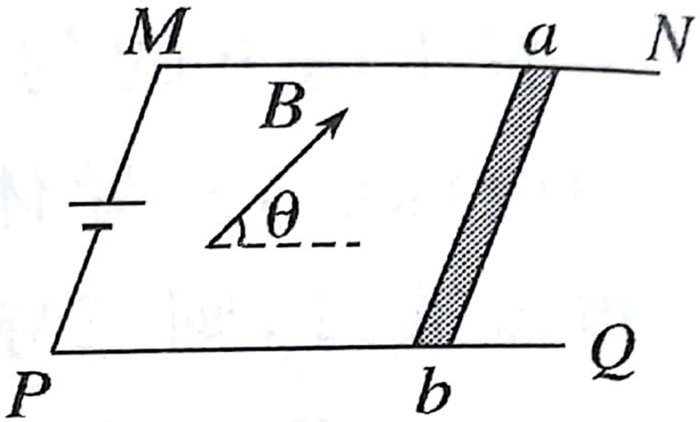


图 12

(1)当 ab 棒静止时,受到的支持力和摩擦力各为多少?

(2)若 B 的大小和方向均能改变,则要使 ab 棒所受支持力为零,B 的大小至少为多少? 此时 B 的方向如何?